

ABSTRACT

A detection apparatus for detecting the process end point in the removal process of a layer on a wafer in an IC or other semiconductor device manufacturing process. This point can be detected in-situ and at high precision even when there is a pattern on the surface, or when there is no distinct change in the polishing layer, or when there is disturbance caused by a difference in the detection position or the slurry. Two or more characteristic quantities are extracted from a signal waveform obtained by irradiating a substrate surface with white light and detecting the reflected signal light or the transmitted signal light or both, fuzzy rules, etc., are used in performing detection by using these two or more characteristic quantities to perform a logical operation, and tuning is performed.